

Remarks/Arguments

Claims 1 and 3-10 are pending before the present amendment. By the present amendment, claim 1 has been amended. No claim has been added or cancelled. No new matter has been added.

In the office action mailed November 9, 2010, claims 1, 3-7, and 10 stand rejected under 35 U.S.C. 102(e) as being anticipated by US 2003/0179173 A1 (Koyama).

As to claim 1, the examiner alleges that Koyama Figs. 14-16 teaches the claimed gate driver section and current boosting section of claim 1 in the present application.

The applicants respectfully disagree.

As to the claimed gate driver section, the applicants respectfully assert that the structure shown in Koyama Fig. 14 is quite different from the structure of the claimed gate driver section such as that shown in Fig. 3 of the present application, even if it were to be argued that the Koyama Fig. 14 may relate to the claimed gate driver section of claim 1.

However, more importantly, Koyama does **not** teach or disclose the claimed current boosting section of claim 1, now amended to recite as follows:

--a current boosting section for increasing current amount supplied to the gate bus lines during the vertical blanking interval in response to a pulse width modulation signal, **wherein the supplied current amount is adjustable according a duty ratio of the pulse width modulation signal**--.

The liquid crystal driving device according an embodiment of the present invention as shown in FIG. 2 comprises a current boosting section 300 in addition to the gate driver section 200 that outputs a plurality of gate on/off signals to the liquid crystal panel 100.

As disclosed in the specification page 8, lines 12-21, the claimed current boosting section is directed to increasing the amount of current provided to the gate bus lines during the vertical blanking interval in response to the pulse width modulation signal PWM. The current supplied by the current boosting section can be adjusted or controlled by varying the duty ratio of the pulse width modulation signal PWM. For

example, by increasing the frequency of the PWM signal, it can act to prevent the current in the gate line from being lowered as the plurality of gate lines are scanned together during a vertical blanking interval. To emphasize this, which is not taught or disclosed anywhere in Koyama, claim 1 has been amended as above.

In Koyama, Koyama teaches the operation that involves **differing** the on/off **timing** periods of the gate lines during a vertical blanking interval. More specifically, Koyama teaches controlling the duty ratio for the specific purpose of controlling the **on/off timings** of the voltage being applied to the gate lines. These teachings of Koyama is quite different from the claimed invention relating to the current booster section which is --for **increasing** current amount supplied to the gate bus lines during the vertical blanking interval in response to PWM signal--. Koyama is about controlling the timing periods in which a voltage can be applied to gate lines during a vertical blanking interval. Koyama is **not** about increasing current to the gate lines during a vertical blanking interval.

Further, from reading of the office action, there may have been some confusion with respect to the use of PWM in Koyama. That is, in Koyama, a timing controller on façade may operate to control the on/off duty ratio of the gate lines, but, unlike this, the presently claimed invention comprises a separate current boosting section for supplying current to the gate bus lines during a vertical blanking interval by adjusting a duty ratio of a PWM signal.

Koyama teaches that its plurality of gate lines are simultaneously scanned during a vertical blanking period, but Koyama never teaches that it has “a current boosting section” or any other circuitry for providing the needed current to each gate line during a simultaneous scan during which the current level will inevitably drop. At least for this reason, Koyama does not teach claim 1.

For the reasons above, the applicants respectfully submit that claims 1, 3-7, and 10 are allowable over the cited reference(s).

Claims 8-9 are allowed, and the examiner is thanked for the indication of allowable subject matter.

Claims 1 and 3-10 remain pending. The applicants respectfully request an indication of allowability of all pending claims in the next action. The examiner is encouraged to contact the undersigned attorney by telephone to expeditiously resolve any issues, if any are remaining.

Respectfully submitted,

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